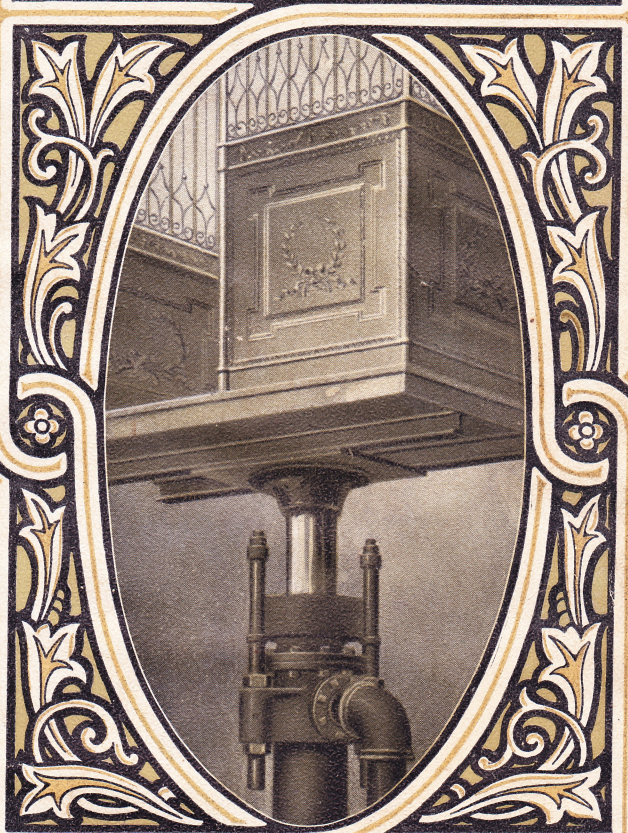


PLUNGER ELEVATORS



-- PLUNGER --
ELEVATOR CO

WORCESTER
MASS

#65-01

THE PLUNGER ELEVATOR COMPANY

BUILDERS OF
DIRECT ACTING
HYDRAULIC
ELEVATORS

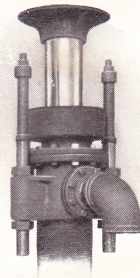
M.P.HIGGINS, *President* GEO.I.ALDEN, *Treasurer*
J.W.HIGGINS, *Secretary* W.F.COLE, *Gen. Manager*

SALES OFFICES:

NEW YORK · 156 FIFTH AVENUE
BOSTON, · 373 WASHINGTON ST.
PHILADELPHIA · 1101 WEST END TRUST BLDG.

MAIN OFFICE & WORKS
WORCESTER, MASS.

INTRODUCTION



The industry of the Plunger Elevator Company had its beginning in the shops of the Worcester Polytechnic Institute, where it is the custom for the students to devote their work to products which are sold

by the Institute. The manufacture of Plunger Elevators was commenced at the school during the early seventies and continued under the supervision of the institution until 1896. By that time the business had outgrown the needs of a school shop, and the men who had been in charge of this work from the beginning organized the Plunger Elevator Company. Constant improvement of the product and steady expansion of the business have characterized the company since its inception.

The good features inherent in the plunger style of construction were early recognized, but for many years the Plunger Elevator was considered to be adapted for limited travels only. Step by step we have made improvements which have enlarged its sphere of service so that our recent installations include elevators of over 200 feet travel and speeds of from 500 to 600 feet per minute. By utilizing new methods of drilling, we removed the limitations previously existing upon the depth of order which could be sunk and the length

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Plunger Elevator Company, Worcester, Mass.

of plunger which could be used. The height of the car travel has thus become to us a matter of detail and the nature of the soil has no bearing except upon the cost of the installation.

The success of any hydraulic elevator depends very largely upon the merits of the valve. As a result of many years of experiment and study, we have perfected a valve which allows an ease of control and smoothness of running absolutely unequaled. This device, together with other improvements which we have introduced, are fully *protected by letters patent* which we own, and therefore our Plunger Elevators described herewith are unmatched by any others upon the market. In no other industry does experience count for so much as in that of elevator manufacture and therefore we feel confident that due recognition will be given to the fact that for thirty years we have devoted our energies to the perfection of the Plunger Elevator.

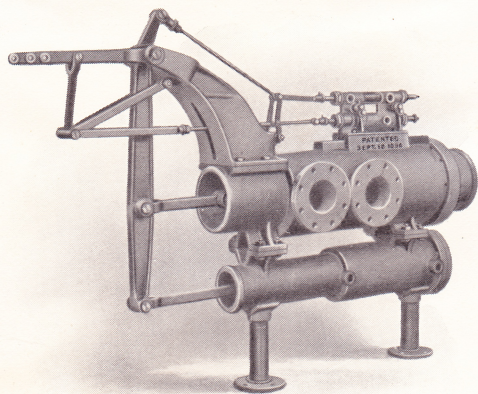


Fig. 1. The Plunger Valve

DESCRIPTION

The Plunger Elevator consists of a cylinder set vertically in the ground directly under the car, and of length equal to the run of the elevator. In this cylinder works a plunger of the same length, carrying the car on its top. The plunger is made of steel tubing of suitable size to raise the required load with the available water pressure, the diameter ranging ordinarily from $4\frac{1}{2}$ inches to $8\frac{1}{2}$ inches. The cylinder is made from steel pipe of 1 or 2 inches greater diameter than the plunger, and is fitted with a stuffing box at the top through which the plunger runs. Water is admitted to and discharged from the cylinder at the top, the annular space around the plunger affording ample passageway for the water.



The supply and discharge of the water is governed by the three-way valve shown in Fig. 1. Shifting this valve one way opens a communication between the cylinder and water supply, and the entering water exerts an upward pressure on the lower end of the plunger which causes the elevator to go up. Upon closing the valve, the plunger carrying the car on its top rests supported upon the incompressible column

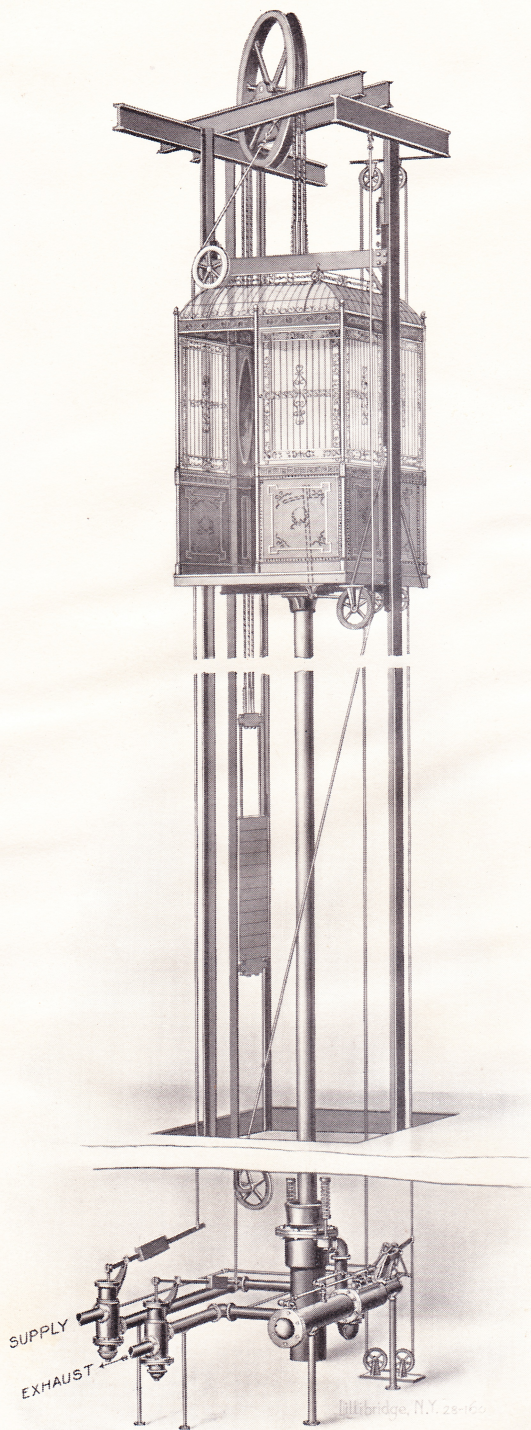
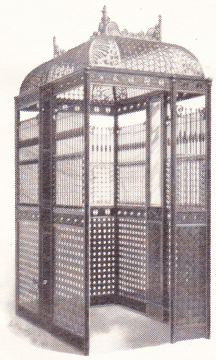


Fig. 2. Passenger Elevator

of water now confined in the cylinder. When the elevator is to descend, the operating valve is made to open communication from the cylinder to the exhaust, through which the water escapes, allowing the plunger and car to descend.



The elevator is absolutely safe from falling, as the car is always supported from beneath, not suspended from above. It is extremely simple, with nothing except the packings to wear, and these are easily and cheaply renewed. The power is exerted direct without the intervention of sheaves and cables, thus securing the highest possible efficiency, and an absolute freedom from vibration. The machinery does not occupy valuable floor space, but can all be located in the basement directly beneath the car, as shown in the illustrations, or, in case the car starts from the basement, within a very small compass alongside the well. When the rise of car exceeds 25 feet, or thereabouts, the weight of the car and the plunger are usually counterbalanced. Valves entirely independent of the main controlling valve are provided to bring the car to a gradual stop at each end of its travel. Two cables, one operating at the top of the run, the other at the bottom of the run, are connected with these automatic valves as shown in the cut.

Fig. 2 shows the passenger elevator and Fig. 3 represents the freight ma-

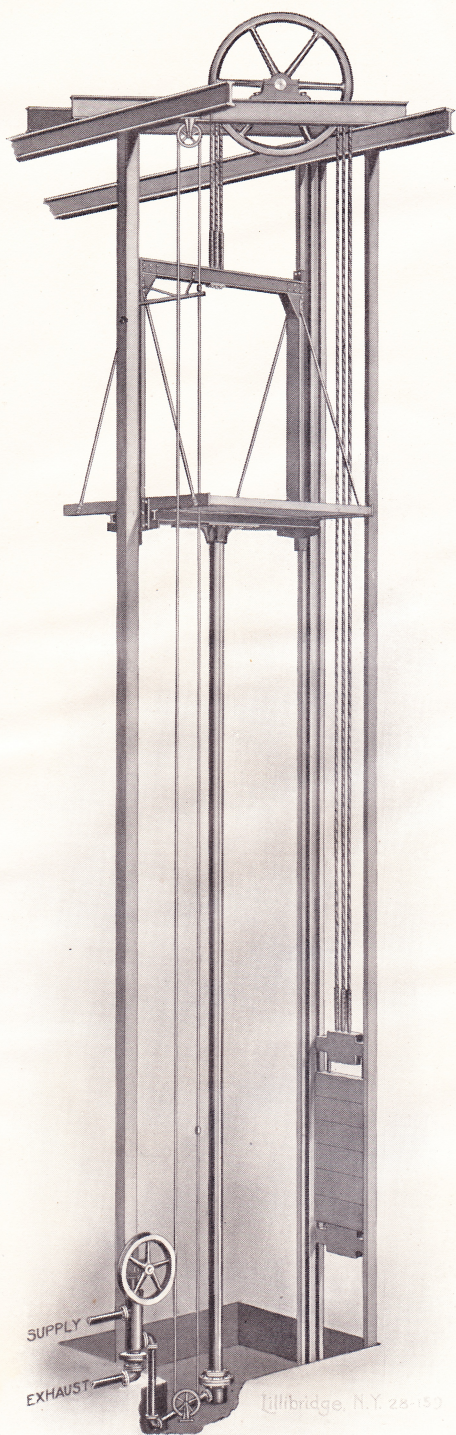


Fig. 3. Freight Elevator

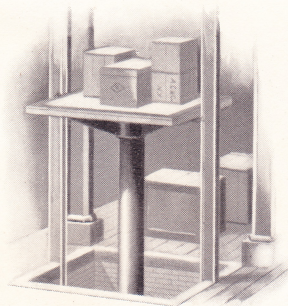
chine. In the general principles of construction the two types are identical, but the passenger elevator is frequently provided with additional features unnecessary for freight work.

The passenger elevator is controlled by a lever in a car, and the main three-way valve is operated by a pilot valve. In this way an easy and perfect control of the car is secured.

The freight elevator is controlled by a shipper rope directly connected with the three-way valve as shown in Fig. 3. This shipper rope is moved by the car itself at each end of its travel, thus bringing the elevator to a gradual stop.

In addition to these two types, we build a sidewalk hoist without counterweights or cables of any kind, as shown in the small cut below. The compactness of the machinery of the plunger type of elevator gives it a decided advantage for this class of service.

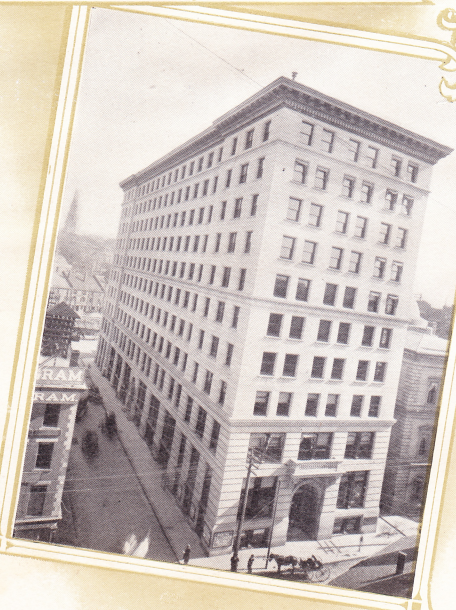
On the following pages are illustrated some of the representative buildings equipped with our Plunger Elevators. It will be noted that the various office buildings, apartment houses, hotels and department stores shown are among the most prominent in the country.



Ansonia Building, New York
The greatest apartment house in the world



Fifteen
Plunger
Elevators
Maximum
car travel
223 feet



Banigan Building
Providence, R. I.
Five Plunger Elevators, maximum car travel 133 feet

Empire
Building
Atlanta, Ga.
The tallest
office building
in the South



Six Plunger Elevators
Maximum car travel 175 feet



Board of Trade Building, Boston, Mass.
Six Plunger Elevators, maximum car travel 123 feet

IMPORTANT INSTALLATIONS OF PLUNGER ELEVATORS

NEW YORK CITY

Ansonia Building, Broadway and 74th Street	15
Saks Building, Broadway and 34th Street	11
Fayerweather & Ladew, East Houston Street	4

PHILADELPHIA

Penn Square Building	2
Young-Smyth-Field Building, Arch Street	4
Pittsburgh Plate Glass Building, Arch Street	5
Merchants' Warehouse Bldg., Delaware Ave.	14

NEWARK, N. J.

Hahne & Co.	16
Gould & Eberhardt	3
Weston Electrical Instrument Co. (Waverly)	3

WASHINGTON, D. C.

S. Kann Sons & Co.	3
Standard Butterine Co.	3

ATLANTA, GA.

Empire Building	6
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BOSTON, MASS.

Board of Trade Building	6
Colonial Building	4
Pemberton Building	3
Jewelers' Building	3
Converse Building	2
Masonic Temple	2
Westminster Chambers	3
Hotel Vendome	2
Pitts, Kimball & Lewis	2
Eastern Cold Storage Co.	2
Vose Piano Factory	3

PROVIDENCE, R. I.

Banigan Building	5
Studley Building	2



Hotel
Ten Eyck
Albany, N.Y.
Three
Plunger
Elevators
Maximum
car travel
130 feet



Young-Smyth-
Field
Building
Philadelphia
Four Plunger
Elevators
maximum
car travel
120 feet

Sage-Allen Building
Hartford, Conn.
Two Plunger Elevators
Maximum car travel
95 feet



Saks Building, Herald Square, New York. Eleven Plunger
Elevators, maximum car travel 134 feet

HARTFORD, CONN.

Sage-Allen Building	2
First National Bank	1
Phoenix Mutual Life Insurance Building	1
Hartford State Capitol	1
Hartford Life Insurance Co.	1

NEW HAVEN, CONN.

Malley Building	3
Y. M. C. A. Building	2

ALBANY, N. Y.

Ten Eyck Hotel	3
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TROY, N. Y.

Frears Bazaar	3
Frears Building	3

PITTSFIELD, MASS.

Berkshire County Savings Bank	1
Stanley Electric Mfg. Co.	2
Kennedy & MacInnes	1
England Brothers	1

LENOX, MASS.

Aspinwall Hotel	2
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SPRINGFIELD, MASS.

Besse Building	1
Carr Building	1
Cooley House	2
Hotel Worthy	1

WORCESTER, MASS.

Five Cent Savings Bank	1
Central Exchange Building	1
Denholm & McKay Co.	6
Barnard, Sumner & Putnam Co.	4

INFORMATION ON WHICH TO BASE AN ESTIMATE

Owner of building

Architect

Name of building

Street and number

City and State

For freight or passenger service

Run from floor to floor

A total rise of

Depth of hatchway below starting level

Maximum load to be lifted

Speed per minute with an average load. (Average load is taken to be one-half of maximum load unless otherwise stated)

Water to be supplied from {
a. City mains at pressure of lbs. per square inch
b. Steam pumps; boiler pressure lbs. per square inch
c. Electric pump current volts potential.
d. Present pumping plant at lbs. per square inch

Size of hatchway

Will elevator run on side or corner posts

Posts to be made of wood or iron

Value of passenger cab

Annunciator or chandelier

Control—Hand rope or lever device

Is relay pump or pumps wanted

Any particular make of pumps wanted

Lillibridge
N. Y.
28-501

Bartlett & Company
The Orr Press
New York

